

#12

1642

RECEIVED
DEC 11 2002
TECH CENTER 1600/2900

1600

RAW SEQUENCE LISTING

DATE: 12/10/2002

PATENT APPLICATION: US/09/770,689B

TIME: 08:40:14

Input Set : A:\SUBSTITUTE_SEQLIST_20021118.TXT

Output Set: N:\CRF4\12102002\I770689B.raw

4 <110> APPLICANT: YAN, Chunhua et al.
 6 <120> TITLE OF INVENTION: ISOLATED HUMAN RAS-LIKE PROTEINS,
 7 NUCLEIC ACID MOLECULES ENCODING THESE HUMAN RAS-LIKE
 8 PROTEINS, AND USES THEREOF
 10 <130> FILE REFERENCE: CL001079
 12 <140> CURRENT APPLICATION NUMBER: 09/770,689B
 13 <141> CURRENT FILING DATE: 2001-01-29
 15 <160> NUMBER OF SEQ ID NOS: 44
 17 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 19 <210> SEQ ID NO: 1
 20 <211> LENGTH: 3248
 21 <212> TYPE: DNA
 22 <213> ORGANISM: Homo sapiens
 24 <400> SEQUENCE: 1

25 ccgcgcgcgc gtttggggccg ggwagcgatg tagtagctgc caggctgtcc cccgcacctgc 60
 26 ccggcccgag cccgcggggc cgccgcgcgc accgcgcgca tgaagaagca gttcaaccgc 120
 27 atgaagcagc tggctaacca gaccgtgggc agagctgaga aaacagaagt ccttagtgaa 180
 28 gatctattac agattgagag acgcctggac acggtgcggt caatatgcca ccattcccat 240
 29 aagcgcttgg tggcatgttt ccaggggccag catggcaccg atgccgagag gagacacaaa 300
 30 aaactgcctc tgacagctct tgcacaaaat atgcaagaag catcgactca gctggaagac 360
 31 tctctcctgg ggaagatgct ggagacgtgt ggagatgctg agaatcagct ggctctcgag 420
 32 ctctcccgag acgaagtctt tgttgagaag gagatcgtgg accctctgta cggcatagct 480
 33 gagggtggaga ttcccaacat ccagaagcag aggaagcagc ttgcaagatt ggtgttagac 540
 34 tgggattcag tcagagccag gtggaaccaa gctcacaaat cctcaggaac caactttcag 600
 35 ggggttccat caaaaataga tactctaaag gaagagatgg atgaagctgg aaataaagta 660
 36 gaacagtgca aggatcaact tgcagcagac atgtacaact ttatggccaa agaaggggag 720
 37 tatggcaaat tctttgttac gttattagaa gcccaagcag attaccatag aaaagcatta 780
 38 gcagtcttag aaaagacct ccccgaaatg cgagcccatc aagataagtg ggcggaaaaa 840
 39 ccagcctttg ggaactccct agcagaacac ctgaagagga gcgggcgcga gattgcgctg 900
 40 cccattgaag cctgtgtcat gctgcttctg gagacaggca tgaaggagga gggccttttc 960
 41 cgaattgggg ctggggcctc caagttaaag aagctgaaag ctgctttgga ctgttctact 1020
 42 tctcacctgg atgagttcta ttcagacccc catgctgtag cagggtgctt aaaatcctat 1080
 43 ttacgggaat tgccatgaacc tttgatgact tttaatctgt atgaagaatg gacacaagtt 1140
 44 gcaagtgtgc aggatcaaga caaaaaactt caagacttgt ggagaacatg tcagaagttg 1200
 45 ccaccacaaa attttgttaa ctttagatat ttgatcaagt tccttgcaaa gcttgctcag 1260
 46 accagcgatg tgaataaaaat gactcccagc aacattgcga ttgtgttagg ccctaacttg 1320
 47 ttatgggcca gaaatgaagg gacacttgct gaaatggcag cagccacatc cgtccatgtg 1380
 48 gttgcagtga ttgaacccat cattcagcat gccgactggt tcttccctga agaggtggaa 1440
 49 tttaatgtat cagaagcatt tgtacctctc accaccccga gttctaata ctcattccac 1500
 50 actggaaacg actctgactc ggggacccct gagaggaagc ggctgctag catggcggtg 1560
 51 atggaaggag acttggtgaa gaaggaaagt cctcccaaac cgaaggaccc tgtatctgca 1620
 52 gctgtgccag caccaggag aaacaacagt cagatagcat ctggccaaaa tcagccccag 1680
 53 gcagctgctg gctcccacca gctctccatg ggccaacctc acaatgctgc agggcccagc 1740

p.6

ENTERED

RAW SEQUENCE LISTING

DATE: 12/10/2002

PATENT APPLICATION: US/09/770,689B

TIME: 08:40:14

Input Set : A:\SUBSTITUTE_SEQLIST_20021118.TXT

Output Set: N:\CRF4\12102002\I770689B.raw

```

54 cgcatacac tgcgccgagc tgttaaaaaa cccgctccag ccccccgaa accgggcaac 1800
55 ccacctcctg gccaccccg gggccagagt tcttcaggaa catctcagca tccaccagc 1860
56 ctgtcaccaa agccaccac ccgaagcccc tctcctccca cccagcacac gggccagcct 1920
57 ccaggccagc cctccgcccc ctcccagctc tcagaccccc ggaggtactc cagcagcttg 1980
58 tctccaatcc aagctcccaa tcaccaccg ccgcagcccc ctacgcaggc cagccactg 2040
59 atgcacacca aacccaatag ccaggggcct cccaacccca tggcattgcc cagtgcagc 2100
60 ggacttgagc agccatctca caccctccc cagactccaa cgccccccag tactccgccc 2160
61 ctaggaaaac agaaccacag tctgccagct cctcagaccc tggcaggggg taacctgaa 2220
62 actgcacagc cacatgctgg aaccttaccg agaccgagac cagtaccaa gccaaggaac 2280
63 cggccccagc tgccccacc cccccaacct cctggtgtcc actcagctgg ggacagcagc 2340
64 ctaccaaca cagcaccaac agcttccaag atagtaacag actccaattc cagggtttca 2400
65 gaaccgcac gcagcatctt tctgaaatg cactcagact cagccagcaa agacgtgcct 2460
66 ggcgcaccc tgctggatat agacaatgat accgagagca ctgccctgtg aagaaagccc 2520
67 tttcccagc ctcaccact tccacctgg cgagtggagc aggggcaggc gaacctcttt 2580
68 ttttgagac cgaacagtga aaagctttca gtggaggaca aaggagggcc tactgtgagc 2640
69 ggacctggcc ttctgcacgg cccaaggaga acctggaggc caccactaaa gctgaatgac 2700
70 ctgtgtcttg aagaagttgg ctttctttac atgggaagga aatcatgcca aaaaaatcca 2760
71 aaacaaagaa gtacctggag tggagagagt attcctgctg aaacgcgcac aggaagcttt 2820
72 tgtccctgct gttaatgcgg gcagcaccta cagcaacttg gaatgagtaa gaagcagtgc 2880
73 gttaactatc tatttaataa aatgcgctca ttatgcaagt cgcctactct ctgctacctg 2940
74 gacgttcatt cttatgtatt aggaggagg ctgcgctcct tcagacttgc tgcagaatca 3000
75 ttttgtatca tgtatggtct gtgtctcccc agtccctca gaacctgcc catggatggt 3060
76 gactgctggc tctgtcacct catcaaactg gatgtgaccc atgccgcctc gttggattgt 3120
77 cggaatgtag acagaaatgt actgttcttt ttttttttt taaacaatgt aattgctact 3180
78 tgataaggac cgaacattat tctagtttca tgtttaattt gaattaaata tattctgtgg 3240
79 tttatatg 3248

```

81 <210> SEQ ID NO: 2

82 <211> LENGTH: 803

83 <212> TYPE: PRT

84 <213> ORGANISM: Homo sapiens

86 <400> SEQUENCE: 2

```

87 Met Lys Lys Gln Phe Asn Arg Met Lys Gln Leu Ala Asn Gln Thr Val
88 1 5 10 15
89 Gly Arg Ala Glu Lys Thr Glu Val Leu Ser Glu Asp Leu Leu Gln Ile
90 20 25 30
91 Glu Arg Arg Leu Asp Thr Val Arg Ser Ile Cys His His Ser His Lys
92 35 40 45
93 Arg Leu Val Ala Cys Phe Gln Gly Gln His Gly Thr Asp Ala Glu Arg
94 50 55 60
95 Arg His Lys Lys Leu Pro Leu Thr Ala Leu Ala Gln Asn Met Gln Glu
96 65 70 75 80
97 Ala Ser Thr Gln Leu Glu Asp Ser Leu Leu Gly Lys Met Leu Glu Thr
98 85 90 95
99 Cys Gly Asp Ala Glu Asn Gln Leu Ala Leu Glu Leu Ser Gln His Glu
100 100 105 110
101 Val Phe Val Glu Lys Glu Ile Val Asp Pro Leu Tyr Gly Ile Ala Glu
102 115 120 125
103 Val Glu Ile Pro Asn Ile Gln Lys Gln Arg Lys Gln Leu Ala Arg Leu
104 130 135 140

```

RAW SEQUENCE LISTING

DATE: 12/10/2002

PATENT APPLICATION: US/09/770,689B

TIME: 08:40:14

Input Set : A:\SUBSTITUTE SEQLIST 20021118.TXT

Output Set: N:\CRF4\12102002\I770689B.raw

```

105 Val Leu Asp Trp Asp Ser Val Arg Ala Arg Trp Asn Gln Ala His Lys
106 145 150 155 160
107 Ser Ser Gly Thr Asn Phe Gln Gly Leu Pro Ser Lys Ile Asp Thr Leu
108 165 170 175
109 Lys Glu Glu Met Asp Glu Ala Gly Asn Lys Val Glu Gln Cys Lys Asp
110 180 185 190
111 Gln Leu Ala Ala Asp Met Tyr Asn Phe Met Ala Lys Glu Gly Glu Tyr
112 195 200 205
113 Gly Lys Phe Phe Val Thr Leu Leu Glu Ala Gln Ala Asp Tyr His Arg
114 210 215 220
115 Lys Ala Leu Ala Val Leu Glu Lys Thr Leu Pro Glu Met Arg Ala His
116 225 230 235 240
117 Gln Asp Lys Trp Ala Glu Lys Pro Ala Phe Gly Thr Pro Leu Ala Glu
118 245 250 255
119 His Leu Lys Arg Ser Gly Arg Glu Ile Ala Leu Pro Ile Glu Ala Cys
120 260 265 270
121 Val Met Leu Leu Leu Glu Thr Gly Met Lys Glu Glu Gly Leu Phe Arg
122 275 280 285
123 Ile Gly Ala Gly Ala Ser Lys Leu Lys Lys Leu Lys Ala Ala Leu Asp
124 290 295 300
125 Cys Ser Thr Ser His Leu Asp Glu Phe Tyr Ser Asp Pro His Ala Val
126 305 310 315 320
127 Ala Gly Ala Leu Lys Ser Tyr Leu Arg Glu Leu Pro Glu Pro Leu Met
128 325 330 335
129 Thr Phe Asn Leu Tyr Glu Glu Trp Thr Gln Val Ala Ser Val Gln Asp
130 340 345 350
131 Gln Asp Lys Lys Leu Gln Asp Leu Trp Arg Thr Cys Gln Lys Leu Pro
132 355 360 365
133 Pro Gln Asn Phe Val Asn Phe Arg Tyr Leu Ile Lys Phe Leu Ala Lys
134 370 375 380
135 Leu Ala Gln Thr Ser Asp Val Asn Lys Met Thr Pro Ser Asn Ile Ala
136 385 390 395 400
137 Ile Val Leu Gly Pro Asn Leu Leu Trp Ala Arg Asn Glu Gly Thr Leu
138 405 410 415
139 Ala Glu Met Ala Ala Ala Thr Ser Val His Val Val Ala Val Ile Glu
140 420 425 430
141 Pro Ile Ile Gln His Ala Asp Trp Phe Phe Pro Glu Glu Val Glu Phe
142 435 440 445
143 Asn Val Ser Glu Ala Phe Val Pro Leu Thr Thr Pro Ser Ser Asn His
144 450 455 460
145 Ser Phe His Thr Gly Asn Asp Ser Asp Ser Gly Thr Leu Glu Arg Lys
146 465 470 475 480
147 Arg Pro Ala Ser Met Ala Val Met Glu Gly Asp Leu Val Lys Lys Glu
148 485 490 495
149 Ser Pro Pro Lys Pro Lys Asp Pro Val Ser Ala Ala Val Pro Ala Pro
150 500 505 510
151 Gly Arg Asn Asn Ser Gln Ile Ala Ser Gly Gln Asn Gln Pro Gln Ala
152 515 520 525
153 Ala Ala Gly Ser His Gln Leu Ser Met Gly Gln Pro His Asn Ala Ala

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/770,689B

DATE: 12/10/2002

TIME: 08:40:14

Input Set : A:\SUBSTITUTE_SEQLIST_20021118.TXT

Output Set: N:\CRF4\12102002\I770689B.raw

```

154      530      535      540
155 Gly Pro Ser Pro His Thr Leu Arg Arg Ala Val Lys Lys Pro Ala Pro
156 545      550      555      560
157 Ala Pro Pro Lys Pro Gly Asn Pro Pro Pro Gly His Pro Gly Gly Gln
158      565      570      575
159 Ser Ser Ser Gly Thr Ser Gln His Pro Pro Ser Leu Ser Pro Lys Pro
160      580      585      590
161 Pro Thr Arg Ser Pro Ser Pro Pro Thr Gln His Thr Gly Gln Pro Pro
162      595      600      605
163 Gly Gln Pro Ser Ala Pro Ser Gln Leu Ser Ala Pro Arg Arg Tyr Ser
164      610      615      620
165 Ser Ser Leu Ser Pro Ile Gln Ala Pro Asn His Pro Pro Pro Gln Pro
166 625      630      635      640
167 Pro Thr Gln Ala Thr Pro Leu Met His Thr Lys Pro Asn Ser Gln Gly
168      645      650      655
169 Pro Pro Asn Pro Met Ala Leu Pro Ser Glu His Gly Leu Glu Gln Pro
170      660      665      670
171 Ser His Thr Pro Pro Gln Thr Pro Thr Pro Pro Ser Thr Pro Pro Leu
172      675      680      685
173 Gly Lys Gln Asn Pro Ser Leu Pro Ala Pro Gln Thr Leu Ala Gly Gly
174      690      695      700
175 Asn Pro Glu Thr Ala Gln Pro His Ala Gly Thr Leu Pro Arg Pro Arg
176 705      710      715      720
177 Pro Val Pro Lys Pro Arg Asn Arg Pro Ser Val Pro Pro Pro Pro Gln
178      725      730      735
179 Pro Pro Gly Val His Ser Ala Gly Asp Ser Ser Leu Thr Asn Thr Ala
180      740      745      750
181 Pro Thr Ala Ser Lys Ile Val Thr Asp Ser Asn Ser Arg Val Ser Glu
182      755      760      765
183 Pro His Arg Ser Ile Phe Pro Glu Met His Ser Asp Ser Ala Ser Lys
184      770      775      780
185 Asp Val Pro Gly Arg Ile Leu Leu Asp Ile Asp Asn Asp Thr Glu Ser
186 785      790      795      800
187 Thr Ala Leu
191 <210> SEQ ID NO: 3
192 <211> LENGTH: 98865
193 <212> TYPE: DNA
194 <213> ORGANISM: Homo sapiens
196 <400> SEQUENCE: 3
197 ctctgtggctg agtttaatta cacactcttg ctctagctgt aaggcagagc tctccaggtt 60
198 agcttcagtg gacaatcttt tcatggtttt ctccagagttg tttcttccaa tagcctcttt 120
199 tcagctaggg gtctcactct gtcacccaga caagagtgcg atggtgtgat aatagctcac 180
200 tgcagcctca aattcctggg ctcaaagtat cctgttgccg cagcctttca actagttggg 240
201 agtacagggt catgccactg cttctggcct tttttttttt tttaaatttt tcatagagat 300
202 gaggttttag tatgtgtgcc aggctagtct catactcctg agctcaagtg atcttcccat 360
203 cttagacctc caaagtgcta ggattacagg tgtgagccac tgcacctggc cccagaagat 420
204 aattttttat ttgtctttta ctctatgttc aaattcttca attttttggt agactctact 480
205 ttttcaattt gtagagcttg catgaatagt gttttccttc tcttgaagtt tagagagatc 540
206 atgtactgta attcctgagc caccttgctg taacaaattt tccagttctt caatcttttc 600

```

RAW SEQUENCE LISTING

DATE: 12/10/2002

PATENT APPLICATION: US/09/770,689B

TIME: 08:40:14

Input Set : A:\SUBSTITUTE_SEQLIST_20021118.TXT

Output Set: N:\CRF4\12102002\I770689B.raw

```

207 ttcctaattg cttagatttt cttgatgctt acaacttatt tccctcaatt tctgttgatg 660
208 aacattctgt aatactgata attcaagctg atggatcatca gtatcctgac ttcttttttg 720
209 tttgagctcc ttgatgatat taatattttg tgtttgtagt ttgttagattt cattttcatc 780
210 aaaactagtt gttcctccta ttttataagt ctgagcaata catttccaat ggccaactgg 840
211 agactcaagt tttagaactt cattggacta tctgtttatt tcttgttatg atgaaattat 900
212 gtcataaaaa cccatgtaag cgtcgtggaa cactgaagca tgatgggtac cacatggaat 960
213 ggaggggatg cagtgtggat gggaacctcc ggccctccct gaatgtgctg actccagggc 1020
214 tggctgccgg tcctgcaacc gatcctgtag tgcttgcttt cttgttttag gaaggctcat 1080
215 ttctacctct ttctgttgta attgatgtcg ataactttta gtttgctgcc ctatctgaag 1140
216 ctctgatgct tcctaggtct ctccatggct actaaaaaga tcttgaagtc cctcattctt 1200
217 tgatattaag aattccaaac tggcatcagt ctccctttatc ccatagtttag ggagctcttt 1260
218 cctttttcta tgacattttag gagcacattt gagatgtggc tgatgaaaga agccacattg 1320
219 ctgcccaccc aatgcaaaag aggggcttac ctggagccaa ggccaccaa ccaggaagac 1380
220 atgagtgtgt gagcacgtgt gtttaaggaa acacacattg actttaattt tttttttttt 1440
221 tttttttttt tcgagacagg gtctctcact ctgttgccca ggctggagtg cagtggcgcc 1500
222 atctcggtct actgcaacct ctgcctttcg ggtaaaagcc gttctcctgc ttcagcctcc 1560
223 tgagtagctg ggattacagg cgtccaccac cacgccagc taaatttgta ttgttagtag 1620
224 agacaggatt tcaccgtgtt ggccaggctg ctctcgaaact cccgagctca agtgatctgc 1680
225 cccctcggcc tcccaaagtg ctgagattac aacgttgaac cactgcgcc tgctagaaac 1740
226 agcttttcat acgttgaaat aaacgagagg gtgaccgggc agcgttgggg tcggggaggc 1800
227 caggcgagg aggcctaggg tcttctcgcc cggggccttc tagctcttcg cccgtgtcag 1860
228 gtaaggcact gttagcctcg gctcgggtcg actcggctct actcgggctc agctcggctc 1920
229 ggccagacct agagggcggg cgggcggtgc cactggaagt gacgaggcga gggcggggcc 1980
230 gccggcccg ggagccaccg ccgcgcgcgc gtttgggccg ggaagcgatg tagtagctgc 2040
231 caggctgtcc cccgccctgc ccggcccgag ccccgcgggc cgccgcgcgc accgccgcca 2100
232 tgaagaagca gttcaaccgc atgaagcagc tggctaacca gaccgtgggc aggcgagtgc 2160
233 gccgggcagc acgggggtcg caccggggct gggggcgagg ggcgaggggc gcggggggcg 2220
234 gacggctcct ccgcggtccg gcggctctga gctgggcgc agcccttgc cgagaccagc 2280
235 ggggcacggg ccggggggct gcgcgcgct gagggccgag cgccgcgctc caggcgccc 2340
236 gcctgtctct cagcgccgc gcggcccgca gacctgcagg ggagggcgcg cgccctcctc 2400
237 gccacaccgc ggggtcccc ctccattgtc cctgcccccg gagcatcgcc ctcggggagt 2460
238 agaccgggtc cttctcctcc ctcccgggg gccgagccag ctgggatcgc tgcctgggc 2520
239 tcaacaacgg tgacttctgt ccctaacgct gtgccgagcg ctgtgctgtg gggggcgga 2580
240 gtcccaggct ttcgcgtgc tcccgctgtt tgcgagtcct tctcctgtaa gtgcatggcg 2640
241 gcaagaaatg gctagaggga catgaaagcc agccggattt gctcagttag ttcagaacgc 2700
242 cctttgaggg aattcgagg tgggtgctgt tcaaaaccag ggctcctagg aactggactg 2760
243 ctgctgccag ttcttgacat ttagaaatta ggaattggcg gaaaaggatt atggagacgc 2820
244 cttgcgcaa tttaaaaagt ctacacttag gtttggaac aaatgcttct ttatcttct 2880
245 ttgctacggt tgaagtgtt aacaagaaac gttattgatt attaaatggc aggctagacc 2940
246 agagttggta gatcagggtt tcagaacaag aaatgatttg tggtttttga gattttctgg 3000
247 aggtgactgt catgtgctgt attatctggg gctaataatt caaggctctt cagggcagct 3060
248 ggctgtactg taccgattta gtgtttattc agcaaagaga tacgaaagta tgaatttctc 3120
249 acagctcttc ttttgatttt ctgtttttta cagttaaggg gaggtttggt tggctgaagc 3180
250 acgtgggaca cttctttttt ttgagtgtat gaaaatactt ttacttctc tcgagtttat 3240
251 taaatttgct ttttactgtt tcatttctc catctttttg cttagtttcc cttgtttat 3300
252 ttttctgatt ccctaccgta ttattgtggt gagaattaac tcttatttcc agggttaatc 3360
253 gctgcccta aagccagac aaacctactt ttctgttatt tgcaggaaaa ttaaagaaat 3420
254 aatgctgaga ggaaggtaga cgtgtggtta tggcggtga tgtttcaagg aacagtttac 3480
255 aagcacatga taatttcttg tgagtttctg acccttgta gtgttctgag caacgtgcat 3540

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/770,689B

DATE: 12/10/2002
TIME: 08:40:15

Input Set : A:\SUBSTITUTE_SEQLIST_20021118.TXT
Output Set: N:\CRF4\12102002\I770689B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:6; Xaa Pos. 2,3,4,5

Seq#:8; Xaa Pos. 3

Seq#:9; Xaa Pos. 2,5

Seq#:10; Xaa Pos. 4